

REMARKS AND DISCUSSION

Upon entry of the present Amendment A, claims 1-7 are pending in the application, of which claims 1 and 5 are independent. Claims 1-3 and 5 are amended herein.

The above-identified Office Action has been reviewed, the references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment is submitted. The applicant respectfully submits that all of the above amendments are fully supported by the original application, and do not introduce any new matter into the application. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

The Examiner was contacted by telephone on September 21 and 26, 2005 to discuss proposed amendments to the claims in view of the cited prior art references. The applicant thanks the Examiner for his helpful remarks and for the courtesy extended during the brief discussions that took place on both of these days. During the initial conversation, the Examiner agreed that Matsuto et al. did not disclose the applicant's configuration in which the ball bearing formed a portion of the hemispherical support socket, and in which the inner race of the bearing was recessed to receive a portion of the motor pivot member, but did not agree that the applicant's proposed amendment avoided Matsuto. As a result, the applicant's representative provided a second version of proposed amendments. However, upon a subsequent search, the Examiner cited US Patent Application Publication 2002-0170289 as disclosing a contact bearing having a recessed inner race disposed in a manner similar to that of the applicant. The Examiner suggested appropriate wording to avoid rejection in view of the newly cited reference. The applicant has incorporated the Examiner's suggestions herein.

IN THE CLAIMS**Claim Rejections – 35 USC 112**

The Examiner has rejected claims 1-7 under 35 USC 112, second paragraph, as being indefinite for failing to point out and distinctly claim the inventive subject matter. In particular, the Examiner objects to claim 1, lines 7-10, as confusing as to which structure the term “swash plate supporting member” represents in view of additional claim limitations presented in dependent claims 2 and 3. In addition, the Examiner objects to claim 5, lines 10-11, which wrongly claims that the output shaft is supported by a bearing attached to the pivot member.

The applicant has amended the claims herein so that the inventive subject matter is clearly, distinctly, and accurately claimed. In particular, claims 1-3 and 5 are amended so that the “swash plate supporting member”, which corresponds to the motor casing 30, is clearly and accurately claimed as being supported on the bearing 40. By these amendments, the objections to the claims are obviated.

Claim Rejections – 35 USC 102

The Examiner has rejected claims 1-7 under 35 USC 102 (b) as being anticipated by Matsuto et al. (US 4, 938,024). In the rejection, the Examiner states that Matsuto discloses a hydrostatic transmission having an output shaft (15) supporting pump and motor cylinders B, and being supported by a motor casing 23 through one bearing 41 of a plurality of bearings; the motor casing including a concave hemispherical support socket f2 for a motor pivot member 22 in which the one bearing includes an inner race recessed relative to an outer race on a side facing the motor pivot member, the motor pivot member including a flat surface perpendicular to its axis.

The applicant agrees that the disclosure of Matsuto anticipates the applicants invention, as broadly claimed. However, the applicant disagrees that Matsuto anticipates the inventive feature wherein the inner race of the supporting bearing is recessed to permit the pivot member to rotate through a greater range. The applicant notes that the transmission disclosed by Matsuto is structurally different than that of the applicant such that Matsuto's tapered roller bearing 41 is positioned at a location exterior of the motor casing (anchor 23) such that the motor casing has a closed spherical surface except for the through hole through which the shaft 15 extends (Fig. 1 and 10). That is, the motor casing abuts the shaft 15, so as to reside between the bearing 41 and the pivot member (holder 22). Although Matsuto's bearing appears to show an inner race which is recessed relative to the outer race, the applicant submits that this structure is related to Matsuto's use of a tapered roller bearing rather than a ball bearing, as disclosed by the applicant.

In contrast, in the applicant's invention, the motor casing 30 is supported on the output shaft 6 by the ball bearing 40, which lies intermediate the motor casing 30 and the output shaft 6. As seen in applicant's Fig. 1, the motor casing 40 is spaced apart from the output shaft by means of the bearing 40, and the bearing 40 is arranged so as to face the interior space of the motor and to confront and abut the end portion of the pivot member 35 which supports the motor swash plate. Because the bearing 40 confronts and abuts the pivot member 35, removal of a portion of the inner race of the bearing advantageously permits an increase range of motion of the pivot member with respect to the motor casing. Such structure, and associated benefits, are not suggested or disclosed by Matsuto.

As noted by the Examiner in the above described telephone interview, a patent application publication by Hayashi et al. US Pub. No. 2002/0170289, discloses a hydraulic continuously variable transmission which includes a motor casing 26, 35 supported on the output

shaft 21a by an angular contact bearing 25, which lies intermediate the motor casing 26, 35 and the output shaft 21a. As seen Hayashi's Fig. 1, the motor casing 26, 35 is spaced apart from the output shaft by means of the angular contact bearing 25, and the angular contact bearing 25 is arranged so as to face the interior space of the motor. However, the disclosure of Hayashi differs from that of the applicant since Hayashi does not disclose a ball bearing in this location, and further does not disclose a ball bearing having a recessed inner race.

For these reasons, the applicant has amended independent claims 1 and 5 herein to more clearly recite the inventive transmission structure. In particular, claim 1 has been amended herein to recite that the rotatable bearing is a ball bearing. Claim 5 has been amended herein to recite that the bearing is a ball bearing, and the recessed configuration of the inner race relative to the outer race of the ball bearing. These features are not suggested or disclosed by Matsuto, who shows a motor casing (23) extending radially to the output shaft (15) so as to lie between the bearing (41) and the pivot member (22), or by Hayashi as discussed above.

CONCLUSION


Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination. Applicant requests reconsideration and withdrawal of the rejection of record, and allowance of the pending claims.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that the Examiner telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable consideration is respectfully requested.

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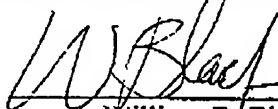
Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being transmitted, via facsimile, to the United States Patent and Trademark Office on October 18, 2005.



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WDB/kmm